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《前悬架模块装配篇》

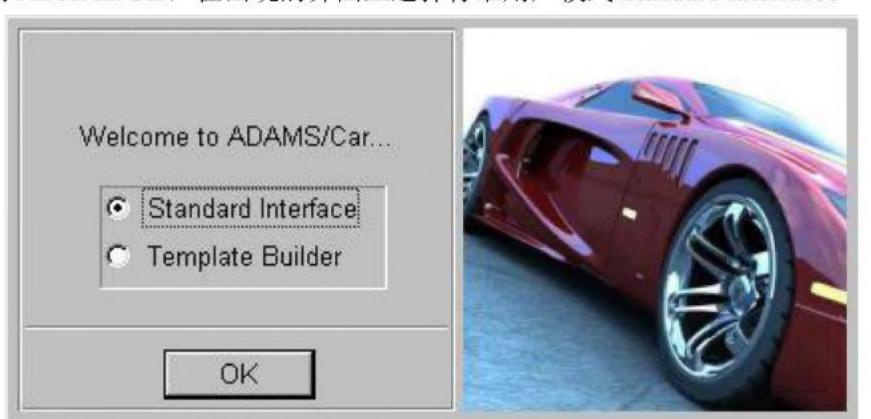
8 前悬架模块装配

前悬架模块主要由前悬架系统、转向机系统、稳定杆系统组成。

8.1 创建前悬架子系统

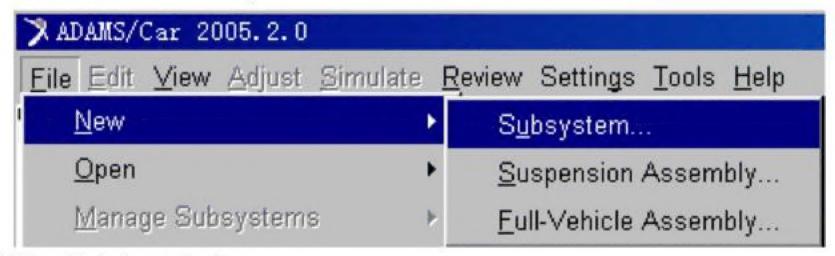
子系统是基于模板创建的,用于后续的悬架装配和分析。进入子系统创建界面有两种途径:

1) 启动 ADAMS/Car,在出现的界面上选择标准用户模式 Standard Interface。



2) 从 Template Builder 界面菜单选择 Tools>ADAMS/Car Standard Interface 或按 F9, 切换到标准用户模式。

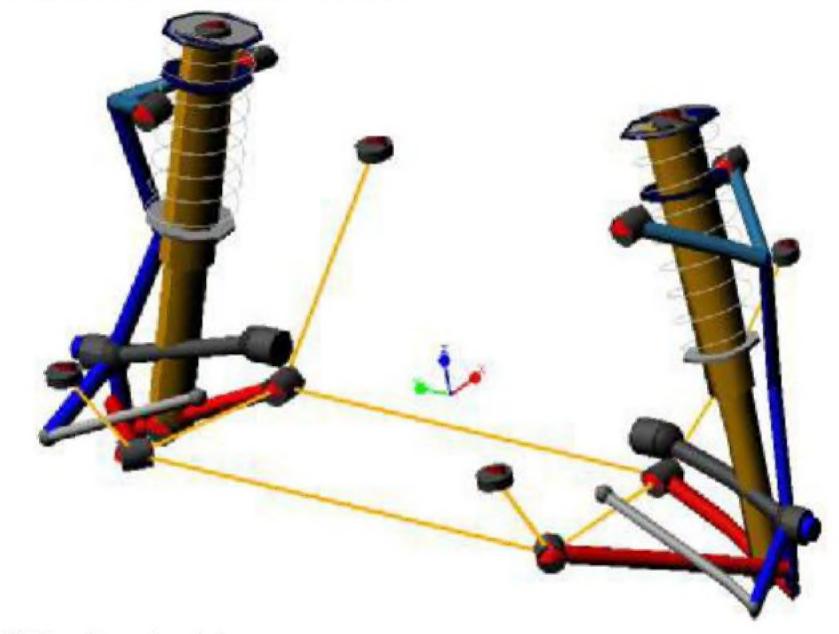
从菜单选择 File>New>subsystem.



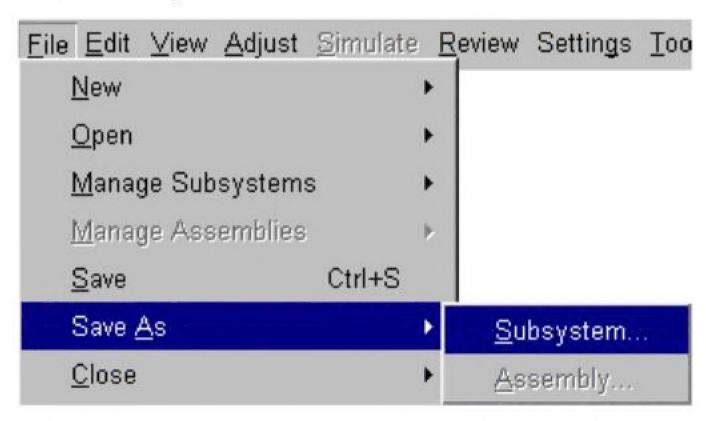
在对话框里输入如下内容:

≫ New Subsystem	X				
Subsystem Name	BMW_X5_front_suspension				
Minor Role	front				
Template Name	mdids://D12_model/templates.tbl/_BMW_X5_front_suspension.tpl				
☐ Translate from default position					
Fore Translation					
Up Translation					
	OK Apply Cancel				

点击 OK。创建的前悬架子系统如下图所示:



从菜单选择 File>Save As>Subsystem。



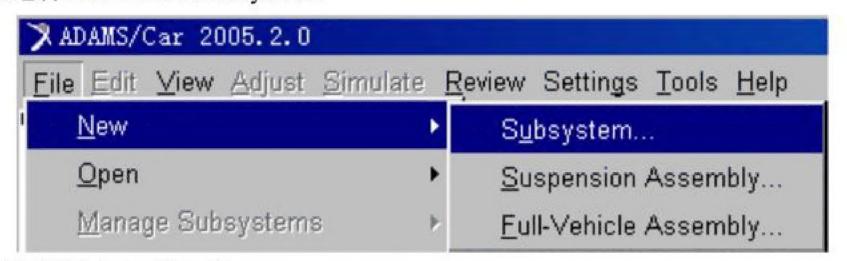
出现的对话框如下图,在 New Subsystem Name 一栏可以修改子系统名称,在 Target Database 里选择目标数据库,本文选择 D12_model。

X Save Subsystem		X		
Subsystem Name	BMW_X5_front_suspension			
New Subsystem Name				
Minor Role	front	-		
File Format	TeimOrbit			
Target Database	D12_model	-		
Close subsystem after save				
Database Info	OK Apply Canc	el		

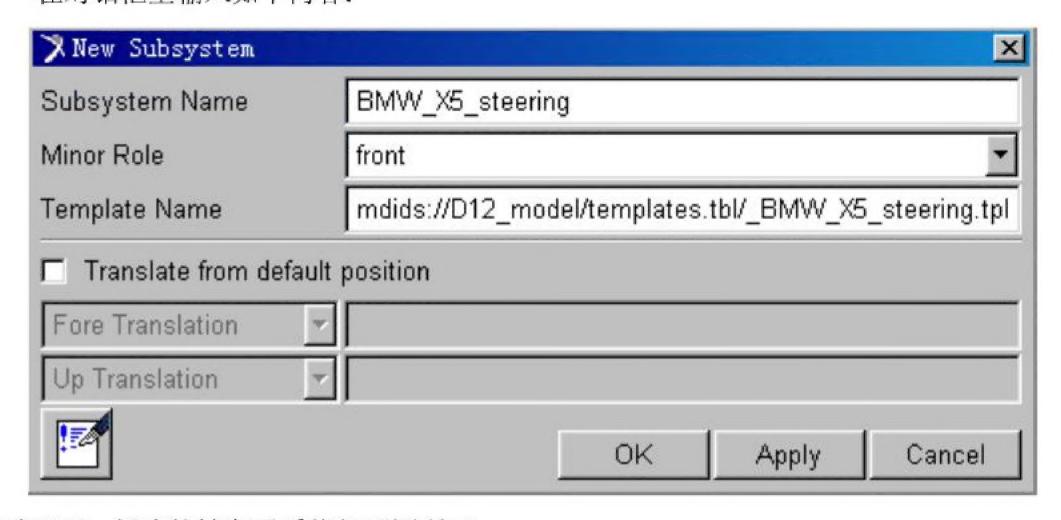
点击 OK, 完成悬架子系统的保存。

8.2 创建转向子系统

从菜单选择 File>New>subsystem.



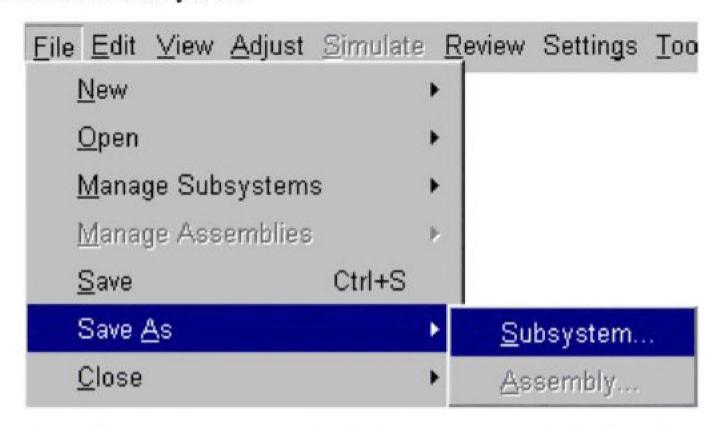
在对话框里输入如下内容:



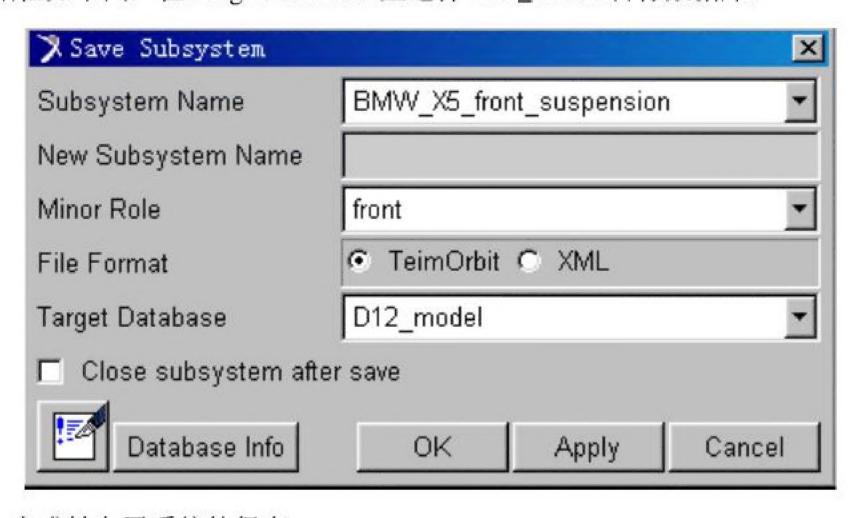
点击 OK。创建的转向子系统如下图所示:



从菜单选择 File>Save As>Subsystem。



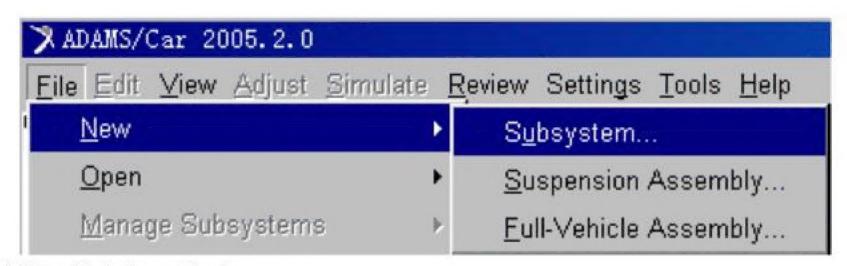
出现的对话框如下图,在 Target Database 里选择 D12_model 目标数据库。



点击 OK, 完成转向子系统的保存。

8.3 创建前稳定杆子系统

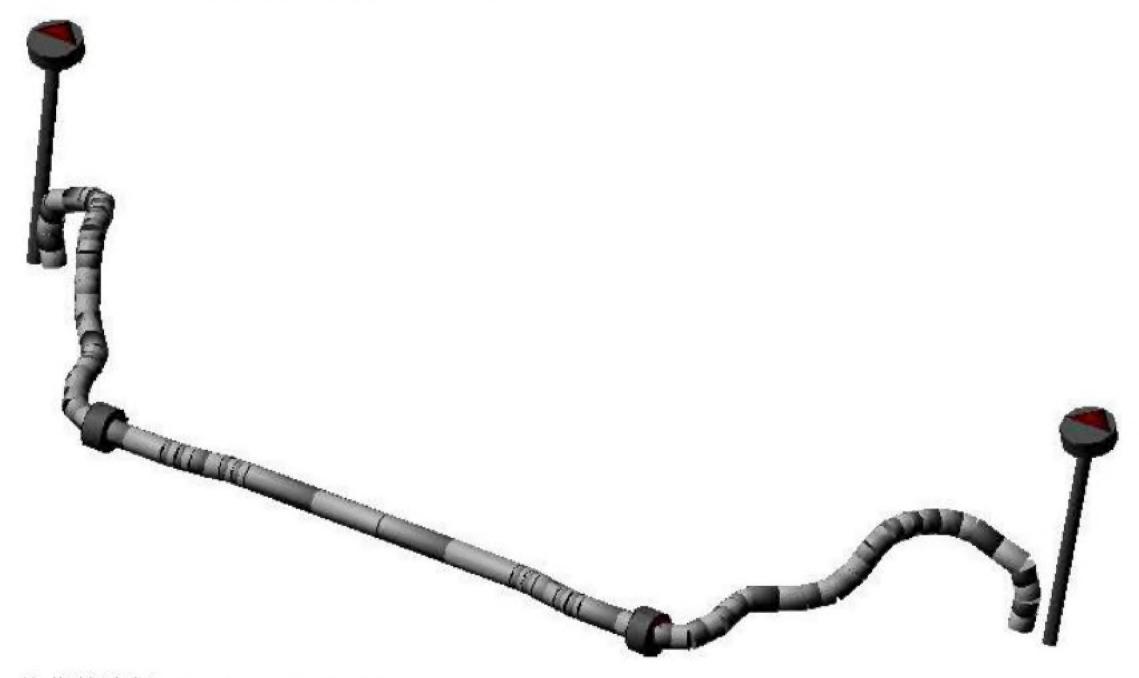
从菜单选择 File>New>subsystem.



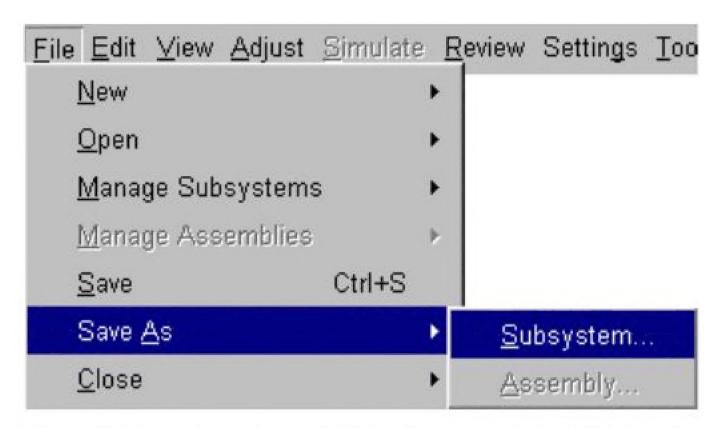
在对话框里输入如下内容:

> New Subsystem ≥					
Subsystem Name	BMW_X5_front_antiroll_bar				
Minor Role	front				
Template Name	mdids://D12_model/templates.tbl/_BMW_X5_frt_antiroll_bar.tpl				
☐ Translate from default position					
Fore Translation					
Up Translation					
	OK Apply Cancel				

点击 OK。创建的转向子系统如下图所示:



从菜单选择 File>Save As>Subsystem。



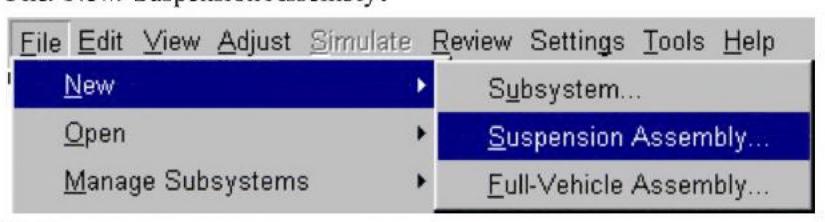
出现的对话框如下图,在 Target Database 里选择 D12_model 目标数据库。

决 Save Subsystem	X		
Subsystem Name	BMW_X5_front_antiroll_bar		
New Subsystem Name			
Minor Role	front		
File Format	TeimOrbit		
Target Database	D12_model		
Close subsystem after save			
Database Info	OK Apply Cancel		

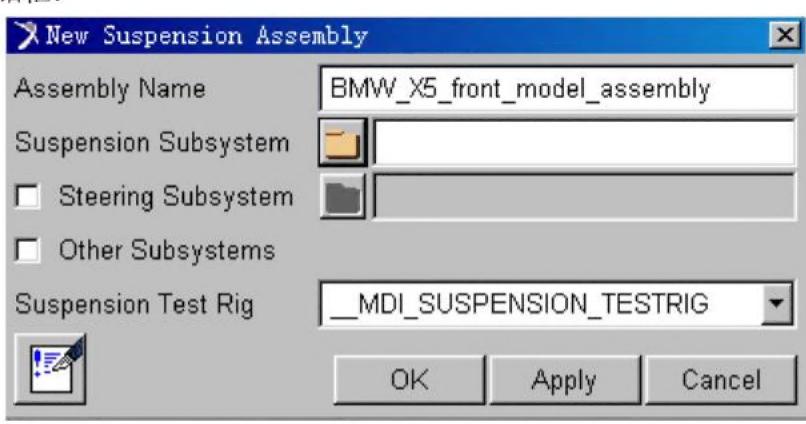
点击 OK, 完成转向子系统的保存。

8.4 装配前悬架各子系统

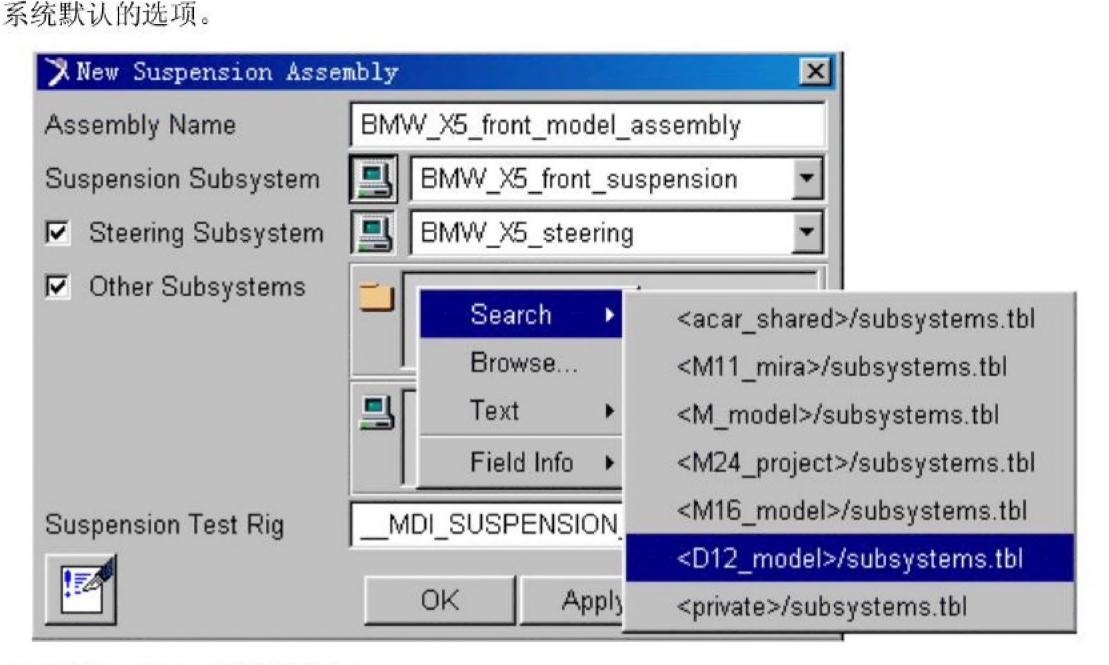
从菜单选择 File>New>Suspension Assembly。



出现如下对话框:



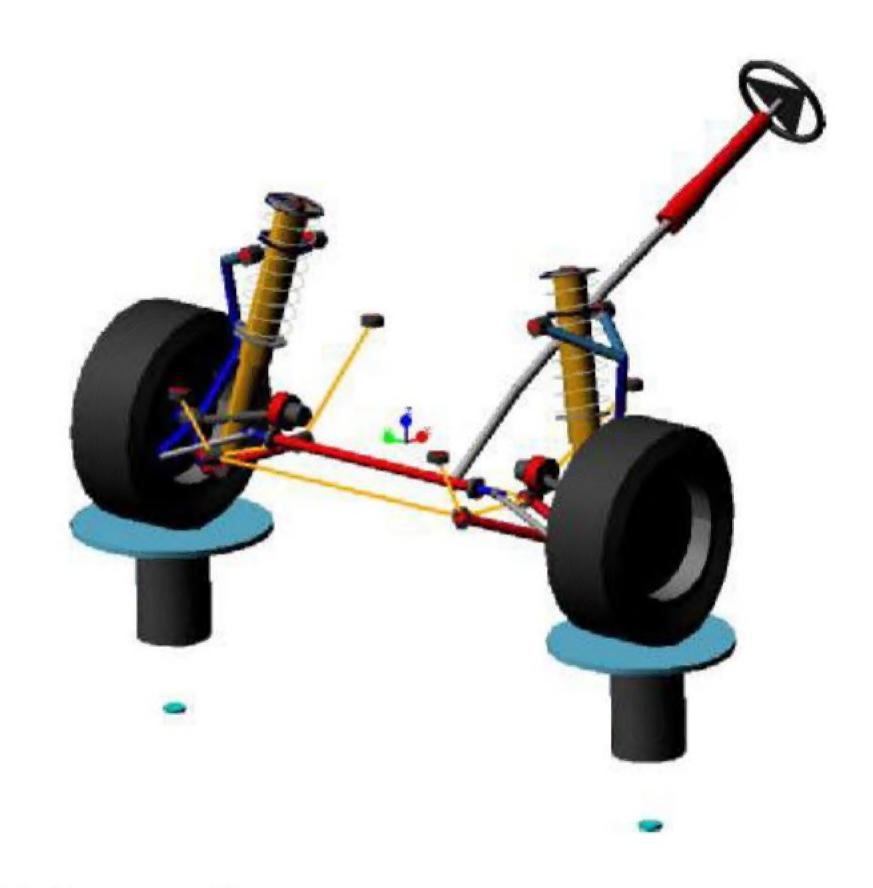
点击 Suspension Subsystem 后面的 图标,可以调入刚才保存过的前悬架子系统;勾选 Steering Subsystem,点击其后面的 图标,调入转向子系统;勾选 Other Subsystem,在后面一栏右击鼠标,选择刚才保存过的稳定杆子系统,如下图所示;Suspension Test Rig 即为



点击 OK, 跳出下列信息窗口:

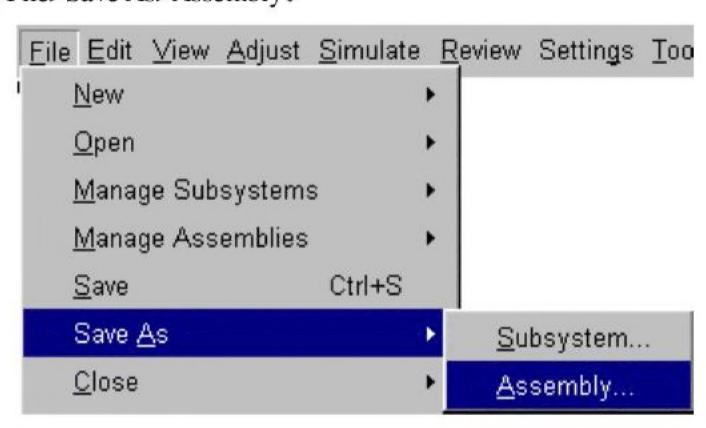
```
🔀 Message Window...
Creating the suspension assembly: 'BMW_X5_front_model_assembly'...
Moving the front suspension subsystem: 'BMW X5 front suspension' ...
Moving the front steering subsystem: 'BMW X5 steering' ...
Assembling subsystems...
Assigning communicators...
WARNING: The following input communicators were not assigned during assembly:
     BMW X5 steering.cis steering column to body (attached to ground)
     BMW X5 steering.cis rack to body (attached to ground)
     BMW X5 front suspension.cis frt subframe to body (attached to ground)
     BMW X5 front suspension.cil frt strut to body (attached to ground)
     BMW_X5_front_suspension.cir_frt_strut_to_body (attached to ground)
     BMW X5 front suspension.cil uca to body (attached to ground)
     BMW X5 front suspension.cir uca to body (attached to ground)
     BMW X5 front suspension.cil ARB pickup
     BMW X5 front suspension.cir ARB pickup
     testrig.cil jack frame (attached to ground)
     testrig.cir_jack_frame (attached to ground)
     testrig.cis leaf adjustment steps
     testrig.cis powertrain to body (attached to ground)
Assignment of communicators completed.
Assembly of subsystems completed.
Suspension assembly ready.
Settings...
                                                                          Close
```

里面的 WARNING 表示在模板里建的各 Mount Part 由于没有跟车身装配,没有被车身取代,系统自动将其与地(Ground)连接到一起,可不用去管它,点击 Close 将其关闭。建立的前悬架模块如下图所示:

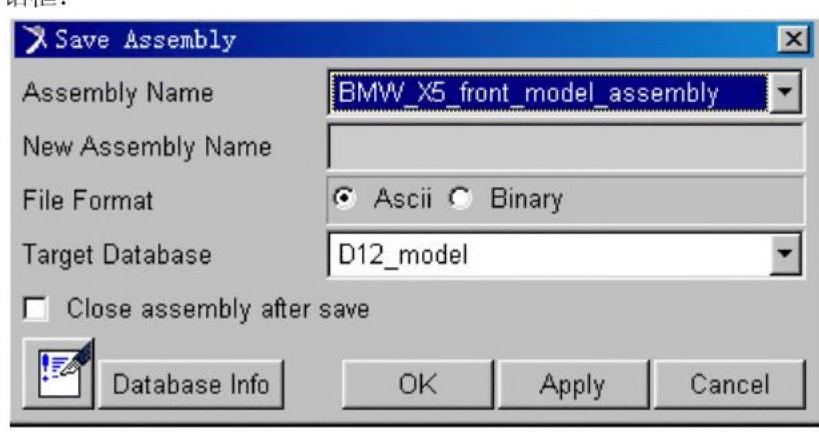


8.5 保存前模块装配体模型

从菜单选择 File>Save As>Assembly。



出现如下对话框:



选择 D12_model,点击 OK,完成前悬架模块装配体保存。